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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,787	01/28/2004	Shaomin Samuel Mo	MAT-238US	3987
23122	7590	07/24/2008		
RATNERPRESTIA			EXAMINER	
P O BOX 980			AGHDAM, FRESHTEH N	
VALLEY FORGE, PA 19482-0980				
			ART UNIT	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/766,787

**Applicant(s)**

MO ET AL.

**Examiner**

FRESHTEH N. AGHDAM

**Art Unit**

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**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 6-12 and 14-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-12 and 14-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed May 30, 2008 have been fully considered but they are not persuasive.

#### **Applicant's Argument(s):**

Regarding claims 1, 3, 6-12, and 14-27, page 14, the applicant argues that the claimed invention is not taught or suggested by Gan "transmitting the bit stream in the first band order and the bit stream in the second band order for receipt by a receiver without changing a transmission frequency band of the multiple bands." And asserts a reason as to why Gan fails to teach the above claimed limitation "These paragraphs indicate that channels are selected for an initial communication and that different channels are selected based on channel performance for a subsequent communication to avoid interference. Thus, transmission frequency bands are changed."

#### **Examiner's Response:**

Regarding the argument set forth above, the examiner disagrees with the applicant because Gan discloses mapping a bit stream to the multiple bands in a first band order, mapping the bit stream to the multiple bands in a second band order that is different than the first band order (par. 56, 62, and 111-112), and transmitting the bit stream in the first band order and the bit stream in the second band order for receipt by a receiver without changing a transmission frequency band of the multiple bands (par. 6 because both the first and second band orders are selected from the same communication frequency band).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 35 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement and the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Newly added claim 35, claims the subject matter of "in the transmitting step, a first frequency band for transmitting the bit stream in the first band order and a second frequency band for transmitting the bit stream in the second band order are adjacent frequency bands", which was not described in the specification as to enable one skilled in the art to make and use the invention and as a matter of fact it is conflicting with what the applicant considers as their invention (fig. 5).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 6-7, 9-10, 12, 14-15, 18-20, 23-25, 35 are rejected under 35 U.S.C. 102 (e) as being anticipated by Gan et al (US 2006/176850).

As to claims 1, 3, 10, 12, 18-19, 23-24, 35, Gan discloses a method of and/ or an apparatus for improving data transmission to a receiver utilizing multiple bands (Abstract; Par. 177-178) comprising: mapping a bit stream within the data stream to the multiple bands in a first band order (Par. 56); mapping the bit stream to the multiple bands in a second band order (responsive to the reception of the error indicator from the receiver; Par. 62 and 111-112); and transmitting the bit stream in the first band order and the bit stream in the second band order for receipt by a receiver without changing a transmission frequency band of the multiple bands (Fig. 1A; Par. 6, 56, 62, and 111-112).

As to claims 6 and 14, Gan discloses that the bit stream is mapped to the first band order in a frame time and the bit stream is mapped to the second band order in a subsequent frame time to the frame time in which the bit stream is mapped to the first band order (e.g. in response to retransmission request; Fig. 1A; Par. 56, 62, and 111-112).

As to claims 7, 9, 15, 20, and 25, Gan discloses a method of and/ or an apparatus for improving data transmission to a receiver utilizing multiple bands comprising: mapping an input bit stream within the data stream to multiple bands in a first band order and the portion of the input bit stream to multiple bands in a second band order (Fig. 1A; Par. 56, 62, and 111-112); receiving the bit stream in the multiple bands during a first transmission and an other bit stream in the multiple bands during a

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second transmission, the received bit streams corresponding to the input bit stream (Fig. 1A; Par. 56, 62, and 111-112); demapping the received bit stream according to the first band order to obtain a first band order bit stream corresponding to the input bit stream (Fig. 1A; Par. 56, 62, and 111-112); inherently demapping the second band including the other bit stream to obtain a second band order bit stream corresponding to the second bit stream (e.g. responsive to the error detection result of the first band; Fig. 1A; Par. 56, 62, and 111-112); and inherently processing the first and second band bit streams to yield the portion of the input bit stream (Fig. 1A; Par. 56, 62, and 111-112).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gan et al, and further in view of Ho (US 2004/0170217).

As to claims 2 and 11, Gan discloses at least a frequency hopping system that operates in accordance with the subject matter of claims 1 and 10 cited above. However, Gan does not expressly disclose that multiple bands in the first and second band orders are selected from the ultra wideband (UWB) channel. One of ordinary skill in the art would recognize that it would have been obvious to one of ordinary skill in the

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art to utilize the combination of frequency hopping with UWB in order to transmit large amounts of digital data over a wide spectrum of frequency bands with very low power as it is evidenced by Ho (Par. 4). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Ho with Gan for the reason stated above.

Claims 8, 16-17, 21-22, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gan et al, and further in view of Son et al (US 2003/0189892).

As to claims 8, 16-17, 21-22, and 26-27, Gan discloses receiving symbols mapped in the first band order and symbols mapped in the second band order (e.g. by requesting retransmission) and processing the symbols to yield the input bit stream. Gan is not explicit about combining symbols mapped in the first band order with the symbols mapped in the second frequency band order; and processing the combined symbols to yield the input bit stream. Son discloses a method and/ or apparatus for data recovery utilizing retransmission request protocol, wherein the symbols of the retransmission signal is combined with the initial transmission signal prior to decoding (e.g. recovering the original transmitted signal; Par. 35). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Son with Gan in order to increase possibility of successful decoding by combining the previously transmitted signal(s) with the current retransmitted signal(s).

Claims 1, 18, 23, and 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boetzel et al (US 7,079,568), further in view of Gan et al and Bauchot et al (US 5,442,659).

As to claims 1, 18, 23, and 28-33, Boetzel teaches a communication system utilizing multiple bands comprising: mapping a bit stream within a data stream to the multiple bands in a first band order (col. 1, lines 44-52); mapping a data stream to the multiple bands in a second band order (due to interference/ collision; col. 1, lines 44-52); and inherently transmitting the bit stream in the first band order and the second band order for receipt by a receiver. Boetzel does not expressly teach that the same data stream is mapped to the first band order and second band order, and also, the first and second band orders are different and are mapped to each of the multiple bands in the first band order and second band order. Gan teaches mapping the same data stream (emphasis added) to two different band orders (par. 56, 62, and 111-112) in order to improve transmission reliability of the communication system. Therefore, it would have been obvious to one of ordinary skill in the art to map the same data stream to two frequency band orders for the reason stated above. On the other hand, Bauchot teaches that the first frequency band and the second frequency band order are selected to be different and the data stream is mapped to each of the multiple bands without removing one or more bands (because one frequency band order is reordered to generate the other frequency band order, col. 1, lines 39-43) in order to combat interference. Therefore, it would have been obvious to one of ordinary skill in the art to



replace the second band order of Boetzel with the second band order of Bauchot for the reason stated above.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **FRESHTEH N. AGHDAM** whose telephone number is (571)272-6037. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Freshteh N Aghdam/

Examiner, Art Unit 2611

/Chieh M Fan/

Supervisory Patent Examiner, Art Unit 2611